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TREATMENT OF HIGH DEGREES OF MYOPIA BY
REMOVAL OF THE LENS.¹

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In classic works on ophthalmology we read that it is impossible to perceptibly lessen short-sightedness, or to quite remove it.

This doctrine is so commonly accepted that as yet no one has ventured to question in any way what Arlt taught relative to myopia.

And yet it would certainly be a thankful task to be able to diminish, even in a slight degree, extreme short-sightedness which, as Arlt says, is a social affliction and shows itself in all ages, in every station and amongst all nations and in all countries.

Without the least doubt the *long axis* of the eye can not be shortened in any way.

The question naturally arises whether the marked refractive error of an eye with a high degree of myopia can not be reduced in some other way.

¹Graefe's Archiv f. Ophthalmologie, xxxvi, 2.

All efforts to flatten the cornea (Purkinje) have proved delusive. Also the latest experiment by Galezowski to cut out a crescent-shaped piece from the cornea has given no satisfactory result.

I have for many years cherished the idea that it would not be a dangerous undertaking *to remove the lens in young persons, by discission*. For, considering the advantages which highly myopic eyes obtain by being made almost emmetropic as compared with the slight danger to which they are exposed, I found myself impelled by frequent complaints from myopes of 13 diopters upwards to operate in this way upon those cases which I considered suitable.

I have hitherto held that the most appropriate case would be that in which only one eye is highly myopic. I thought, in case my theoretical supposition should also prove practical, that it would be certainly worth undertaking the same operation in bilateral myopia.

For unilateral myopes can never make use of the short-sighted eye except when they have had the misfortune to lose the better eye. In my design I was the more strengthened when I found that another well-known authority upon refraction, Prof. Mauthner, in his classic work (*Vorlesungen über die optischen Fehler des Auges*, 1876, S. 681) expressed the same opinion. Mauthner says in opposition to Donders (who held that a highly myopic eye would not gain much if made aphakic, because the accommodation would be sacrificed): "If I may be allowed I must express quite an opposite opinion. In its optical relations a high grade of myopia would be incomparably better if the lens were not in the eye."

Taking the greatest precautions, I have during the past three years operated upon 19 myopic eyes of 13 diopters and upwards. As I have mentioned at the beginning, I have treated only young people (up to 24 years of age) in this manner, and *only those with relatively good visual acuity who could read Jager No. 1 at their PUNCTUM REMOTUM, and whose fundus presented no choroidal or retinal disease*. On November 8, 1889, I exhibited to the Imperial-Royal Medical Society of

Vienna two patients cured in this way. One was a young woman, æt. 23, with 20 diopters of myopia and one other, a high-school boy of 16, with M. of 13D. Both had comparatively good acuity of vision, and with the exception of small myopic crescents, normal fundis. The improvement of the visual acuity was in the first case nearly twelve-fold. Before the operation $V.=\frac{1}{xxv}$; at the time of the exhibition it was $\frac{1}{x}$; five months later it was $\frac{1}{ii}$. In the case of the young man the improvement was eight-fold; before the operation $V.=\frac{1}{x}$; at the time of exhibition $\frac{1}{v}$; after five months $\frac{2}{iii}$.

ADVANTAGES OF APHAKIA IN MYOPIA.

As opposed to a nominal disadvantage—the sacrifice of the accommodation—may be mentioned the following advantages in favor of removal of the lens :

1. Distinct vision in the distance.
2. Enlargement of the retinal images.
3. Manifold improvement of the visual acuity in the distance.
4. The excessive strain upon the accommodation, and its injurious consequences disappear with the recession of the far point.
5. The injurious habit of bending over work is no longer continued, for work can now be done at a proper distance.
6. Binocular vision for the near which, on account of demands on the convergence, was formerly impossible, is again established.

The spasm of accommodation and the accommodation itself, two disturbing elements in highly myopic eyes, disappear.

It is quite certain that indistinct vision in the distance is the most burdensome grievance of the short-sighted. It is easy to understand, when even a man of Purkinje's ability felt himself obliged to place over night a small sack, filled with a half pound of filings, on his eyes and the next morning felt very fortunate to be able to see distinctly the numbers on the opposite houses. Purkinje had a myopia of $5\frac{1}{2}$ diopters only. One can imagine from this how much greater the affliction of my-

opes of 20 diopters must be. I mention this simply because during the exhibition of the above-mentioned patients, one of the oculists present remarked that it was not the indistinct sight merely, but the choroidal and retinal complications which produced such disagreeable results, and that the same amount of relief could be obtained quite as well by the use of concave glasses as by aphakia.

But concave glasses of 12 to 15 diopters are seldom prescribed and those from 15 to 20 never borne. They greatly diminish the size of objects; they bring about prismatic distortion of images; experience teaches that such myopes complain that the wearing of fully correcting glasses causes dizziness and headache. On the other hand, weaker glasses are of no use to them. Grillparzer tells us in his autobiography (10. Bd. 1879, S. 141,) that he was extremely short-sighted and found himself, when he was 36 years of age, obliged, in consequence of his affliction, to abstain from visits to the theatre, to which he had devoted the greater part of his life work. In spite of his high degree of myopia which, as he writes, caused him many hours of distress, he retained till the time of his death, at an advanced age, relatively good vision. Myopes of a high grade are not fit to do manual labor, because they cannot hold their heads sufficiently near to objects; they do not recognize people on the street and so are exposed to all sorts of unpleasantness. Insecurity on the street and in unfamiliar places belongs as well to these burdensome afflictions.

A short time ago I was consulted by a myope (20 D.) æt. 30 years, who, after passing through the gymnasium, studied theology. Unfortunately, on account of the increase of his previously small amount of myopia, he was obliged to resign and now lives upon the donations of the charitable. The vision of highly myopic persons, when rendered aphakic, is good in the distance; they are able to do both difficult and light work since they can see quite well at the required distance.

The enlargement of the retinal images is a material advantage. It so happens that in the higher degrees — 18 to 22 diopters — correcting concave glasses are no more necessary

after discission, while with myopes of 12 to 18 instead of concave glasses convex glasses become necessary. The change from concave to convex glasses brings about a great improvement. For strong concave glasses, besides diminishing the size of retinal images, have this effect increased by their distance (12 to 15 mm.) from the nodal point, while convex glasses produce opposite effects.

I succeed in obtaining in all cases, as a minimum result a 4-fold, as a medium result a 7-8-fold, and in one case an 11-12-fold improvement in vision. The visual tests were, as far as possible, made partly alone and partly with my assistant, Dr. Fenzl, before and after the discission, and I can safely assume, therefore, that no mistakes occurred. I remark here that the visual acuity cannot be properly determined until four to five months after the absorption of the lens, since when tested, immediately after a discission—just as in the operation for cataract—it indicates only a fraction of its proper amount. In the improvement of vision for the distance lies the greatest benefit which the high-grade myope derives from his aphakia; there is no other remedy, no spectacles, hardly even an opera-glass, can offer a 4 to 10-fold improvement of the visual acuity. It is true that a portion of the improved power of sight must be ascribed to the enlargement of the retinal images, but enlarged images do not suffice to explain *all* the improvement. I quote, for example, Mauthner, who found (l. c., page 186, Table III) that in the case of myopia of 20 D. the relation of the size of objects before and after the removal of the lens is 1: 1.33, in the same eye. Indeed, I cannot altogether account for the greater part of the improvement; I can only say that it is founded upon fact and can not be disproved. We understand quite as little about the remedial influence of iridectomy in cases of glaucoma, and we do not on that account dispute the fact. There must be other as yet unexplained causes which, combined with the aphakia, produce the good results. It may be that the experience of others may throw some more light upon this subject.

With the recession of the *p. remotum* there is a restriction of

binocular sight. With a near point at 2"—3" a myope of a high grade can not, even for a short time, do any work. Here another gain is made [after discission.] In eyes of unequal acuity of vision, myopes, as a rule, use only the better eye and neglect the weaker one. In consequence of this the acuity of vision falls in the latter, and gradually a strabismns divergens may result. With the restoration of binocular vision the lowering of the visual acuity in the weaker eye is checked and the consequent squint is prevented.

It is commonly acknowledged that long-continued accommodative spasm finally leads to true axial myopia. ("Fuchs' Ophthalmology," 1889, page 683, Mauthner, l. c., page 671, etc.) Many authors, Dobrowolsky, Erissmann, Schön and others, ascribe to the accommodation a considerable influence upon the increase of myopia. The cause of this lies in increased tension within the hyaline cavity during accommodation. I must, indeed, remark here that myopes of a high grade are never able to make full use of their accommodation. For example, young myopes with M. $\frac{1}{3}$ (13 diopters) and with M. $\frac{1}{2}$ (20 diopters) according to their age, possess considerable range ($\frac{1}{3}$) of accommodation. They at the best accommodate from 3"— $\frac{2}{3}$ ", relatively from 2"—1 $\frac{1}{5}$ ". Hardly any one will affirm that the accommodative power in these persons can be called an acquisition. With corrective glasses they may, of course, accommodate from the distance to quite near at hand, but I hardly need to mention that myopes of 13 diopters can not wear fully correcting glasses, by means of which they can use their accommodation for the doing of near work. This would be, as Mauthner (l. c., page 682) expresses it, "unjustifiable," since these glasses furnish such very small retinal images. Without glasses they cannot accommodate and with them they should not; their accommodation is consequently of no use to them. Indeed, if I may be allowed to go still further, in my opinion the accommodation in high degrees of myopia is injurious in consequence of the heightened pressure in the vitreous, because it plays a not unim-

portant part in the increase of the myopia. Coccius,² as early as 1852, established experimentally this effect of the accommodation. Von Graefe made the same observation in the year 1854, when he found venous pulsation during accommodation. Heinrich Müller expresses himself in the same way. Arlt also writes of the increased pressure in the vitreous during accommodation, as does Iwanoff. Hensen and Völckers prove the same thing by direct experiment. They found that during the act of accommodation the choroid moves forward; this movement causes dragging on the blood-vessels, exudation and subsequent increased tension in the vitreous. The numerous researches of Schön, continued for many years, are of the greatest importance. He claims that simple and inflammatory glaucoma, as well as cataract, are the consequences of strain of the accommodation. After all these explanations one may affirm with confidence that myopes of a high grade lose nothing, but on the contrary profit something by removal of the accommodation power³. Finally, I may say that young people with aphakia *do really* possess a certain amount of accommodation. I operated two years ago on a boy, æt. 16 years, (both eyes) for zonular cataract. He now reads with correcting glasses—+10 D.—Jäger No. 2. Although these observations, first published by Förster, were, as is well known, denied by Donders, Woinow immediately after, by means of his careful experiments, proved undoubtedly that people with aphakia really possess a not unimportant amount of accommodative power.

THE RULES WHICH I HAVE FOLLOWED TO AVOID THE
DANGERS AND ACCIDENTS OF DISCISSION.

It is true that, among other things, discission may be the cause of iritis or irido-choroiditis, through excessive swelling of the lens. Although I may not communicate anything new,

²Anwendung des Augenspiegels, 1853, S. 74.

³For the above quotations see references in foot-notes at page 237, Graefe's Archives, xxxvi, 2.

I shall proceed to show that all the dangers of discission can be successfully combatted. To prevent the danger of violent swelling I always make a small cross-cut in the capsule so as to determine the amount of swelling which I may, later on, expect in the lens. If this prove small I repeat the discission after a day or so, and later on as often as appears necessary. In some cases it happened that there were lenses which swelled immoderately, even though I had made a very small incision. The first two cases, in spite of this, progressed very favorably as the patients (histories Nos. 1 and 14) had no pain and no ciliary injection. I did not feel called upon for any further operation.

Where, on the other hand, signs of irritation, pain or photophobia, present themselves, I occasionally do a paracentesis corneæ, hitherto always under chloroform, so that I should not be prevented from carrying out the operative details by pressure of the lids and by the pain which it caused.

When I wished to proceed with all confidence, particularly in persons who possessed only one useful eye, and when the patient or his parents allowed me to do so, *I performed an iridectomy upwards before the discission*. This former is the surest means we possess against an increase of tension, and with ordinary precautions the iris cannot heal in the wound. The disadvantage of the disfigurement cannot be compared to the security which the operation gives; besides this the coloboma is covered by the upper lid. As is well known von Graefe has (*Archives of Ophthalmology* V., 1st. part, page 181) testified to the excellence of this procedure, and in cases of discission for soft cataract has designated it as his "favorite method." Henceforth I am determined to treat every case of a high grade of myopia in this manner, especially individuals over 12 years, as these are just the cases that cannot bear severe swelling of the lens. Iridectomy is at the same time an excellent precautionary measure against attacks of iritis and choroiditis. Von Graefe writes in the same paper (page 179): "The inflammatory irritability of the iris can be lessened by incision of the sphincter, and it cannot take as dangerous a turn as without iridectomy."

Of the other possible accidents following discission should be mentioned suppuration of the wound and secondary cataract. The former has not happened since I began to irrigate the conjunctival sac with a 1.5000 solution of mercuric chloride before each discission. After the operation I allow the patient to lie down for half a day, place a bandage on the eye and take care that the pupil is thoroughly dilated with atropine. To the last mentioned precaution I attach the greatest importance. So that large pieces of it may not remain I have endeavored to cut the lens freely in the later stages, as, according to my experience, membranous secondary cataract is very difficult or impossible to remove by discission. In this way I always obtain a black pupil.

Concerning corrective glasses in aphakia, I have found that in myopia of 15—16 D. the emmetropic condition resulted. In the same way a myope of 10 D., when rendered aphakic, would be hypermetropic about 6 D; in M. 12 D. H. of 4 D. would result, while in myopes of more than 16 D., say of 20 D., there remained M. of 4, D. These calculations I have proved in practice to be correct.

I must mention still another advantage gained in these cases of aphakia. High grade myopes, operated on in this way, are ever after secure from the ills of cataract and (after correctly performed iridectomy) glaucoma. For, Donders tells us (*Anomalies of Refraction and Accommodation*, page 202, 307 and 338) that the above-mentioned diseases more frequently affect myopes of a high degree than they do emmetropes.

OPERATIVE (EXTRACTION) APHAKIA IN ELDERLY MYOPES.

Since discission is not practicable in elderly people, the lens must be extracted. There are not many cases recorded in literature where the clear lens has been removed by extraction. The transparent lens must be extracted or else it must be ripened beforehand. As yet I have never performed this operation; still I believe that with the advances made in the

present day the extraction of the clear lens in high-grade myopia will yet yield the best results. In every case I would advise an iridectomy. Von Graefe mentions in the *Archives* (IV, 2nd part, page 175) such an extraction preparatory to the later removal of a cysticercus from the vitreous. The operation was a complete success. Von Graefe, in this connection, expressed the opinion that in such cases a "complete emptying" is to be expected since, when the lens is completely transparent, the resistance (to extraction) is least in the neighborhood of the capsule.

The following are the accounts of 19 cases treated by discission, and of four others still under treatment. It must be remembered in this connection that when one finds a comparatively low degree of myopia in children, it may be confidently expected that as the years go by, the ametropia will increase rather than decrease in amount. All cases had a normal ophthalmoscopic appearance, the crescents being small or at most $\frac{1}{3}$ of a pupillary diameter—wide. On this account I have, for the sake of brevity, said nothing about them in these reports. Atropine was used in making all the examinations.

1. Franz Z., in Vienna, 8 years old, right eye emmetropic; left myopic 11 D.; $V = \frac{18}{cc}$ or $\frac{1}{x_1}$. On April 3, 1887, discission. Small cross-cut; no swelling. On April 6, repeated discission, larger cut; decided swelling; in a week the lens lay at the posterior aspect of the cornea; no pain, no ciliary injection, tension normal; cold bandages often during the day for a week. Absorption normal after three months. A year later the pupil was clear. Vision with +6 D. $\frac{2}{v}$, consequently a four-and-a-half fold improvement.

2. Hermine B., of Vienna, 14 years old; right eye emmetropic, left myopic 11 D.; vision $\frac{1}{x_{IV}}$; discission July 3, 1887; normal course; discission repeated five times: vision a year later with +6 D. $\frac{20}{L}$; five-and-a-half fold improvement.

3. Heinrich S., 15 years; pupil of the high-school in Vienna; right eye M. 12 D.; vision $\frac{1}{x}$; November 30, 1887, iridectomy upwards; after this discission seven times; normal

course but with moderate flow of tears, for which reason I changed the dressings often and kept the eye well atropinized. A month after absorption of the lens, vision $\frac{2}{v}$. Since then I have not seen the case.

4. Katherine K. from Pilsen; 15 years; left eye, November 1, 1888, M.15D.; vision $\frac{1}{x}$; discission nine times. After the fourth discission some pain in consequence of a cold, which, after four days and the use of cold bandages, disappeared. Eight months later with +1.25D. vision $\frac{1}{ii}$.

5. Same person; right eye M.14D.; V.= $\frac{1}{x}$; discission on May 10, 1889, repeated eight times; vision, after five months, with +1.50D., $\frac{2}{iii}$. May, since then, have become much better. During the healing, strabismus divergens appeared, for which reason I performed the operation for squint with good results.

6. Franz B., in Pilsen; 15 years. Both eyes myopic 12D.; vision $\frac{1}{x}$. On February 25, 1889, discission, left eye, which was repeated nine times; normal convalescence; September 5, vision $\frac{1}{v}$ with +4.50D. At present vision $\frac{2}{iii}$; therefore an eight fold improvement.

7. Rudolph S., 10 years old. Right eye M.13D.; vision $\frac{1}{v}$; December 23, 1888, discission six times repeated; tedious absorption of lens. On March 14, 1889, paracentesis corneæ. April 8, pupil black; vision $\frac{1}{v}$; October 10, 1889, vision $\frac{1}{ii}$.

8. Left eye of the same boy, M.14D.; vision $\frac{1}{v}$. Discission on March 20, 1889. Slow absorption of the lens. After the fifth discission, on May 8, 1889, paracent. corneæ. Thread-like cataractous remains across the pupil were at the eighth discission divided, after which a black pupil. Vision, $\frac{2}{v}$ on October 10, 1889, with +2D.

9. Klementine B., 22 $\frac{1}{2}$ years old; teacher in Potschau. Both eyes myopic 20D., vision, $\frac{6-8}{cc}$ =ca. $\frac{1}{xxv}$. On July 28, 1889, discission, repeated twelve times. After a cold, slight irritation set in (pain and ciliary injection) but no exudation; cold applications for three days; vision, on November 8, 1889, $\frac{1}{x}$; at present with -5.5D., vision, $\frac{1}{iii}$; hence ten to twelve-fold improvement.

10. Left eye of the same person. On November 12, 1889,

discission, repeated nine times; normal convalescence; vision with $5\frac{1}{2}$ D., at first $\frac{1}{x}$.

11. Karl H., 14 years. Both eyes myopic 14D.; vision, $\frac{1}{v}$; December 12, 1889, discission in right eye, repeated eight times. Usual course. On April 20, 1890, with +2.5D. vision $\frac{2}{vii}$.

12. Left eye of the same boy, December 20, 1889, discission, repeated eleven times. On April 20, 1890, vision $\frac{2}{vii}$ with +2.5D. I await with certainty a greater improvement in vision of both eyes.

13. Emma H., 9 years, from Carlsbad. Both eyes myopic 13D. V.= $\frac{1}{xiii.3}$. Slight cloudiness of cornea. On August 4, 1889, discission, left eye. After a week severe swelling of lens; paracent. cornæ on August 24; convalescence after this normal. October 10, 1889, capsular remains needed; after this a black pupil. V. on December 20, $\frac{1}{x}$.

14. Otto S., 10 years. R.E. emmetropic. Left myopic 10D. V.= $\frac{1}{x}$. Strabismus divergens. November 13, 1889, discission. Profuse swelling of lens, but without pain or symptoms of tension; discission twice, later. Normal absorption. April 19, 1890, with +7.D.V.= $\frac{2}{iii}$, a seven-fold improvement. Operated for strabismus on April 19.

15. Joseph P., 8 years. R.E. emmetropic. Left myopic 10D. V.= $\frac{1}{x}$. October 5, discission, repeated nine times. Progress normal. April 20, 1890, pupil black; with +7.D., V.= $\frac{2}{v}$.

16. Wilhelm S., 11 years old; both eyes myopic 12D.V.= $\frac{2}{vii}$. On December 23, 1889, discission, left eye; repeated eight times. April 5, with +5.D., V.= $\frac{2}{iii}$. I am about to operate on the second eye.

17. Franz S., 12 years; large congenital coloboma of iris and choroid in both eyes. Myopic 12D.V.= $\frac{1}{xx}$. December 4, discission of the left lens, repeated twelve times. April 25, 1890, with +4.D., V.= $\frac{1}{x}$, and is certain to be better.

18. R.E. of same boy. Discission on February 19, 1890, repeated eight times. The inferior bow-shaped border of the unabsorbed lens torn by saw-shaped cuts with the discission needle and a large pupil resulted. Vision can only be determined later.

19. Auguste R., aged 23, formerly could see equally well with both eyes. Eight months before ran a sewing needle into his right eye. This caused great pain for which he used cold applications and was given atropine. In three months he could barely distinguish light with this eye. February 4, 1890, I found in the enlarged pupil some capsular remains which prevented a view of the fundus. After this history I expected violent swelling of the lens and consequent increase of intra-ocular pressure. L.E. myopic 20D.V.= $\frac{1}{v}$. I did not care to undertake this case, but at the repeated requests of the patient, and on account of his complaint that he was incapable of doing any work, on February 5 I made a wide iridectomy upwards. February 12, discission—a very small cut. Very little result. After that, on February 16, repeated slight discission. Upon this there was much lenticular swelling; no pain but feeling of tension, and photophobia; cold bandages and rest in bed. When the symptoms were relieved I made a paracentesis corneæ under chloroform, as I was hindered by the photophobia. March 1, another paracentesis corneæ, as the anterior chamber had between times filled with lens matter. The result was very good. April 28, pupil rather clear. In the anterior chamber small flocculi. Patient reads words of Jäger, No. 15.

ADDENDUM—FOUR EYES STILL UNDER TREATMENT.

20 and 21. Joseph Rz., 11 $\frac{1}{2}$ years. Myopic, both eyes, 15D.V.= $\frac{1}{v}$. April 2, 1890, iridectomy both eyes, under chloroform. April 10, discission right. Slight swelling; discission repeated six times. April 14, discission of the left, repeated four times. Both lenses swollen satisfactorily.

22 and 23. Antonia G., 24 years old; both eyes myopic 13 D.V.= $\frac{1}{x}$. April 27, wide iridectomy both eyes.

Upon the further progress of these cases I shall give a later report.

[I am indebted to my associate, Dr. Wm. F. Smith, for the following note, hitherto unpublished, of a case in which he extracted the clear lens for high myopia. This publication is not intended to establish a prior claim to Dr. Fukala's operation, but is made with the idea that possibly other Americans may have had cases of high myopia in which resort has been had to operative interference. In 1880, an Irishman, æt. 35, a book-keeper, presented himself for treatment. He had a myopia of $\frac{1}{2}$ (20 D.), his far point being 2" from the cornea. The right lens was extracted by the flap operation without iridectomy and came away entire. With $-\frac{1}{8}$ or $\frac{1}{7}$ (-5 or -6 D.) he had, three months after the operation, vision of $\frac{20}{XXIV}$ minus and was able to do book-keeping. The left lens was not disturbed.]

INTERSTITIAL KERATITIS.

BY CHARLES H. MERZ, A.M., M.D., SANDUSKY, OHIO.

The following history will serve to illustrate a class of cases with which the physician is frequently brought into contact. While there is nothing unusual in the method of treatment, the case, owing to its advanced stage and severity, may prove of interest.

On August 28, Miss G., æt. 20 years, was brought to my office at the suggestion of her attending physician. She was suffering from almost total blindness, having perception of light only, and was unable to see any object that was even directly in front of her. She had been under treatment for some time, her physician having used atropine and various other mydriatics in his efforts to improve her vision.

Upon examination, the entire cornea of each eye was found to have undergone an inflammatory change, but there was no tendency to ulceration or to the formation of pus. The corneæ presented a cloudy, ground-glass appearance, the pupils and irides being hidden entirely from view. The opacity had assumed a yellowish-red appearance. There was intense photophobia, lachrymation and considerable pain—especially in the supra-orbital region and back of the eye. In addition to this, the ocular conjunctiva was very much congested. Upon oblique examination, there were found numerous minute blood-vessels formed in the tissue of the cornea, giving the "salmon patch" of Hutchinson. The history of the case was that both eyes had been attacked simultaneously. Upon examination with the ophthalmoscope, flakes of blood could be detected in the anterior chamber of both eyes and the aqueous humor proved to be turbid.

The case had been treated by various astringent washes without any perceptible improvement in vision or photophobia. The history of the case was carefully studied and the conclusion reached that the cause was a constitutional, specific one. The teeth were small, the nose-bridge sunken and the upper central incisors were notched on the edges. The family history was difficult to obtain and threw no light on the case. In this connection, the statement of Nettleship led to the confirmation of the diagnosis:

"I have found other personal evidence of inherited specific trouble in 54% of my cases of interstitial keratitis, and evidence from the family history in 14% more—total 68%, and in the remaining 32%, there have been strong reasons to suspect it. Treatment was commenced by instillations of cocaine and atropine 4% and the following formula:

R _x	Hydrargyri bromidi,	-	-	-	gr. j.
	Kalii iodidi,	-	-	-	℥iij.
	Ammon. iodidi,	-	-	-	℥jss.
	Tr. gentianæ comp., q. s. ut ft.,	-	-	-	℥iv.

Sig.: Three times a day take one teaspoonful in water.

Improvement was very slow, but marked. After a week of this treatment, finely powdered iodoform was dusted into the eyes twice a day, and hot fomentations used morning and night. At the expiration of the second week I prescribed the hypophosphites with ol. morrhuae and a pill of quin., ferrum et nux vom. The hot fomentations and the iodoform were continued. Improvement was now more marked. The corneæ had become much clearer and she was able to see a figure standing before her. The pain and lachrymation lessened. She was again placed upon the iodides and a solution of eserine gr. i to ℥j dropped in the eye night and morning and atropine (gr. iv-℥j) at noon. During this time the patient took her daily exercise and morning sponge bath with the use of the flesh brush. Under these hygienic measures her general health and nutrition became very much improved. In addition to using smoked glasses, she was kept in a room shaded from direct light.

At this time, after six weeks of this plan of treatment, the patient has required almost normal vision. All pain and discomfort have disappeared, but there remain still one or two minute opaque points on the corneæ but they are not over the pupillary area, and consequently do not interfere with the vision. The general health of the patient has returned to its normal standard.

Two facts in the case are of special interest. The first is the short time required to effect a cure—the usual time being six months or a year. This is attributed to the free use of hot water and iodoform. The power of hot water in removing inflammatory products is well known. The water was used on compresses as hot as it could be borne. The iodoform was finely powdered and dusted freely. The hyperæmia induced by the mechanical irritation of iodoform undoubtedly assists in removing the inflammatory products.

The second point is the large percentage of cases in which a constitutional or inherited specific trait enters as a factor. In every instance in the writer's observation, interstitial keratitis has been traced directly to this source. Each case will require its own special treatment, but in general indications the mercurials and iodides with tonics should be freely administered, and the use of hot water, iodoform, eserine and atropine persisted in. This case is remarkable for the speedy recovery that followed the use of these remedies.

LACERATION OF THE INTERNAL RECTUS.

BY J. J. M'ACHRAN, M.D., SALT LAKE CITY, UTAH.

Mr. I., æt. 20, came to my office in June with an outward and upward deviation of the right eye. He gave the following history: Two weeks previous while fencing with a companion he received a thrust from a foil armed with a small button at the point in the inner canthus of the right eye. He had at the time of receiving the wound called on his physician, who told him to tie it up and that it would be all right, notwithstanding he saw double at the time. The conjunctiva had healed with a sinking of the caruncle.

Under cocaine, I opened the conjunctiva and found no trace of the attachment of the internal rectus. It had been completely severed from its attachment to the globe. The inferior rectus was partially lacerated, and hence let the eye turn upward.

With Prince's pulley stitch I secured the internal rectus and thus corrected the outward deviation. He still saw two objects, one lower than the other, or rather one-half of objects with the right side drawn down.

Thinking the inferior rectus would regain its original power I left it untouched. I brought the conjunctiva together with a number of stitches and bandaged the eye with moist boracic compresses. The pulley stitch was removed on the third day. The internal rectus had taken a good hold, as seen from its power to rotate the eye inward. The globe still deviated upward. I then began to exercise the inferior muscle with the use of prisms and in fourteen days he saw objects as natural as ever, excepting while running, the ground would "turn up," as he

expressed. But the trouble has disappeared and his eye is as useful as ever.

The most remarkable circumstance of this case is how an object the size of the button ($\frac{3}{8}$ in. in diameter) could be forced through the conjunctiva between the globe and inner wall of the orbit without lacerating the lids or the globe; neither of which it did.

CORRESPONDENCE.

CAPSULITIS PURULENTA ET HÆMORRHAGICA.

HALIFAX, N. S., November 8, 1890.

EDITOR AMERICAN JOURNAL OF OPHTHALMOLOGY.—In the April (1890) issue of your journal I reported a case of capsulitis purulenta et hæmorrhagica, which occurred in the New Amsterdam Eye and Ear Hospital, New York. It was prophesied at that time that the dense gray membrane which filled the pupillary area would yield to an after-operation and good vision be secured. I am pleased to report that our expectations were fully realized. On May 22, after the eye had completely recovered from its inflammatory condition, Dr. Pooley performed the after-operation which was called for.

An incision was made in the lower outer segment of the cornea with a Beer's knife which was passed in so as to perforate the membrane at its center. The opening thus made was enlarged outward and the incision carried through the sphincter border of the iris. After the withdrawal of the knife Tyrell's hook was inserted and the opening in the membrane somewhat enlarged. No vitreous was lost, and a speedy recovery followed without an untoward symptom. The patient was discharged in a week with vision $=^{20}/_{LXX}$ with the proper glasses. On September 23 she returned to be examined for glasses, with the following result: L.V. $=^{20}/_{XL}$ with +11 D.s. \odot +4 D.c. ax. 15° . Reads figure No. 1 at 10" with +14 D.s. \odot +4 D.c. ax. 30° . Considering the notes essential to a complete history of the case, I forward them to you.

Yours truly,

E. A. KIRKPATRICK, M.D.

SELECTIONS FROM AMERICAN MEDICAL JOURNALS.

SOME REMARKS ON THE RELIEF OF REMOTE NEUROSES, BY THE RESTORATION OF OCULAR EQUILIBRIUM.

BY F. ALLPORT, M.D.

The subject of ocular insufficiencies and over-sufficiencies appears to be one of those crazes that occasionally strike the medical profession with cyclonic force. Like cyclones, these crazes are unexpected in their attacks and frightfully devastating while they last. Their careers are shortlived, but they leave many aching hearts behind to tell the story of over-credulous patients and over-zealous physicians.

We can learn but little, it is true, without experimentation, but in the name of suffering humanity, there should be some limit placed, beyond which the pitiless drug or knife of the medical man may not leave its mark.

What a multitude of mistakes must be laid to the demon of "reflex" action, who, like a fitful spirit, flits hither and thither in our human anatomy, and ever and anon lays his icy hand upon some one of our organs and claims it for his own. How quickly the medical profession grasps at the hint. Immediately a long chain of diseases is looked upon from a different standpoint. Women are ruthlessly laid upon the operating table and castrated. Children are circumcised; teeth are extracted and noses are cauterized. In short, the abiding place of "reflex neuroses" may be found in any organ of the body,

and is liable to an invasion by ignorant zealots. Meanwhile the physician is in a hopeless state of bewilderment. The commonest diseases assume a mysterious appearance, and he fears the presence of the lurking "reflex" behind every muscle, nerve and tissue in the body. It matters not whether a patient complains of his eyes or not, clip, clip go the scissors, and his muscles are severed. It matters not if the child's prepuce utters a note of warning. Off it comes. It matters not whether the woman ever complains of her ovaries. Down she must lie and in a twinkling they are laid on the table beside her, and the surgeon imagines he has achieved a signal triumph, especially if he can show that he has made a great many such operations in a very short space of time.

Why do not physicians conscientiously narrate to us the ultimate results of these cases, upon which they base such wonderful reports? Because they are ashamed to do so! After they have tried them for a time, and the results are finally forced upon them, they simply quietly lay away their hobby and say nothing about their conclusions. But does it teach them a lesson? Unfortunately no! They are ready for the next visionary dream of some over-zealous enthusiast, and are soon deep in the mysteries of the latest "reflex." Where and when will this insane chasing of a will-of-the-wisp cease? How many of the crippled, the maimed, the halt and the blind must be arrayed before us like the ghosts of Richard's victims, before we are contented to inoculate our practice with a little common sense? The answer is as visionary as a "reflex neurosis." But it is to be hoped that the time is not far off; that the day of our salvation and the salvation of our patients is at hand.

One gleam of sunshine I have been able to extract from the general gloom, has helped me over many a dark place. It is this: Never attack an organ, unless that particular organ is causing distinct uneasiness. If an organ is diseased to an extent sufficient to warrant interference, it will usually make its pathological condition evident.

The latest candidate for the approbation of the medical men,

is the influence exerted upon the nervous system by insufficiencies and over-sufficiencies of the ocular muscles.

The subject of tenotomies for ocular insufficiencies is not a new one. But the subject of graduated tenotomies for ocular insufficiencies, and their effects upon the different organs of the body, is comparatively a new one. Tenotomies have, until recently, meant a complete cutting away of the tendons from the eyeball, and this has referred more particularly—almost exclusively, I may say, to insufficiencies of the internal recti muscles. To Dr. Stevens, of New York, is to be given the credit of having elaborated the subject of graduated tenotomies and advancements, for the relief of reflex and remote diseases, and of having called attention to other varieties of insufficiencies, beside those of the internal recti muscles. To Dr. Stevens must also be given the credit of having systematized this entire subject, and of having given us an exact and intelligent nomenclature. His methods of operating are of the very best, and are of such a nature as to make them valuable to every ophthalmologist. His instruments for operating are as near perfection as they can be made, and his phorometer renders the detection of insufficiencies easy and systematic. His claims to cure headaches, head neuralgia, etc., will find sympathy, approbation and acquiescence from all ophthalmologists. But his claim to relieve general chorea, epilepsy, paralysis and other grave and remote neuroses by graduated tenotomies, is so extreme as to warrant the unfavorable verdict rendered by almost the entire profession. His claims were so broad, and his personal statistics so surprising, that it became necessary for the profession either to accept or reject the grounds upon which he stood. Therefore the New York Neurological Society determined to thoroughly and impartially investigate the subject. Accordingly in March, 1887, with the acquiescence of Dr. Stevens, a commission was appointed, consisting of Drs. Seguin, Starr, Birdsall, Moore, Weber, Dana, and Foster (the two latter being appointed by Dr. Stevens himself), to consider the value of Dr. Stevens' treatment. This commission was not compelled to bring in a report at any specified date. This was

left to themselves. They were requested to bring in their report whenever they had arrived at a conclusion. They were merely asked to consider the subjects of chorea and epilepsy, these being the subjects upon which Dr. Stevens laid the greatest stress, and in which he claims (without, however, substantiating his claims by intelligent statistics) to cure 50% of all cases submitted to his charge. A preconcerted plan was agreed upon that was undoubtedly fair to all, by which patients were placed under Dr. Stevens' care, and observations of progress taken from time to time. This plan appears to have been carried out honestly by the members of the commission, although claims to the contrary were advanced by Dr. Stevens. The total number of cases sent to Dr. Stevens for treatment was 28; 23 were epileptics; 5 cases of chronic chorea, and all had some form of insufficiency. Fourteen of these cases withdrew for various causes: 5 were unable to attend regularly; 2 were declined by Dr. Stevens because of organic disease; 5 were withdrawn by mutual consent of the members of the commission sending the cases and Dr. Stevens, for satisfactory reasons, such as non-attendance, etc. Three were discontinued because they grew worse instead of better under the treatment; [makes 15. Ed.] hence only 14 remained and became available for observation. These cases were under treatment for periods varying from several weeks to 30 months, and the result showed that no cases were cured. One case was much improved, 5 cases improved, 7 cases unimproved, and the result in 1 case was unknown. From these results it will be seen that 6 cases were claimed to be improved; 3 of these cases were from Dr. Stevens' own private practice, and no exact notes of their previous condition were available. In 5 cases the improvement was very slight; the sixth case was an epileptic who did about as well under Dr. Stevens' treatment as under the bromide treatment. Some of the patients were made worse instead of better, and in some diplopia and vertigo were developed.

Such in brief was the result of the investigations of the commission appointed in March, 1887, and which reported in November, 1889. Their labors appear to

have been carried on in a spirit of honesty and fairness. They declare that inasmuch as Dr. Stevens has utterly failed to achieve the great results he claimed, this method of treatment is not worthy to be classed among the principal agents for the cure of chorea and epilepsy. This appears to have been agreed to by even those members of the commission selected by Dr. Stevens himself; Dr. Dana (one of Dr. Stevens' friends) even going so far as to say, that while when he entered the commission he was prejudiced in favor of this method of treatment, the result of his observations had been to make him lose faith in its efficiency. One remarkable fact is, that Dr. Stevens reports to have cured 50% of the cases of epilepsy and chorea submitted to him in his own private practice. He further claims that the cures materialized promptly; but the commission reports that no cases were cured, and there were practically only 3 cases that made even doubtful improvement, and the course of improvement in them all was protracted.

The fact of the matter is, Dr. Stevens appears to be enthusiastic and very zealous in his investigation of this subject, and has arrived at a point where he claims too much and where his claims have no reasonable hope of being sustained by a fair and impartial examination. If he merely advocated the use of this remedy for headaches, head neuralgias, etc., he would have many endorsers, but as it now stands the breadth of his claims is only equaled by the members of the profession who are his open antagonists. Notwithstanding the fact that the commission was appointed with the acquiescence of Dr. Stevens, and that the commission and Dr. Stevens labored together for a period involving $2\frac{1}{2}$ years, Dr. Stevens, at the meeting in November, 1889, brings in a protest against the reception of this report by the Society. If he did not wish to work with the commission he should have said so at the start; if he wished to object to the method in which the commission was prosecuting its labors he had ample opportunity to do so. But he accepted the cases that were sent to him (with the exception of the 14 that were rejected), and treated them

presumably to the best of his ability, and it would seem as if he should stand by the results. He even has the poor taste to vent his spleen by unjust and personal allusions to the members of the commission, and it is gratifying to learn that such allusions were passed by in dignified silence by the Society, the personal character of the members of the commission being sufficient guarantee against bigoted animosity cutting any figure in its labors. It appears to me that if such neuroses are dependent upon a lack of ocular equilibrium, Dr. Stevens, with the immense labor that he has put upon the subject, the undoubted information he has acquired, and the great skill that he unquestionably possesses, should be able to achieve exact results, and that successful operations, directed against these conditions, should be positive and rapid in their consequences and not protracted and unsuccessful.

For my part I have little faith in graduated tenotomies. I believe that if a muscle is worth tenotomizing at all, the operation should be complete, and that an absolute separation of the tendon from the eye-ball should be brought about. In Dr. Stevens' method the tendon is picked up by a pair of fine forceps and the middle fibres are cut, leaving the two lateral margins of the tendon intact; this looks well in theory, but according to my observation does not materialize in practice. The fibres that are cut are supposed to fall back and become attached to the globe at another point. I do not believe that this is the case. I believe that the fibres fall back during the operation, but in a short time thereafter, in the course of healing and cicatrization, the fibers pull back to their original place of attachment. This statement I have repeatedly verified by observations, upon the human being and animals, by first making graduated tenotomies, and, after a while, reopening the conjunctiva and carefully observing the condition of affairs. Dr. Stevens himself, I understand, sometimes finds it necessary to repeat this operation from 15 to 20 times on a single person. If this is the case, and some of his cases are under observation for $2\frac{1}{2}$ years without achieving decided results, it would appear to me that the operation should be condemned and a search

made for some new remedy. I believe there is a great deal of nonsense in the subject of ocular insufficiencies and tenotomies, when presented in its most favorable aspect, and it appears to me that almost all of the hundreds of cases that I have examined by Dr. Stevens' phorometer have had some varieties of muscular insufficiency. To summarize then: I believe that errors of refraction and ocular insufficiencies are a fruitful source of headaches, head neuralgia and other neuroses, situated in and about the eyes and head. I believe that such diseases can be remedied by the proper adjustment of glasses and by proper tenotomies. But I do not believe that chorea, epilepsy and other remote neuroses are produced by errors of refraction or by muscular insufficiencies, except as such abnormalities indirectly cause an impairment of the general health, which might in its turn present a favorable soil for the growth of the various neuroses. I have but little faith in graduated tenotomies, and believe that if a tenotomy is indicated at all, the complete operation is necessary.—*J. A. M. A.*

NEW TESTS FOR BINOCULAR VISION.

It frequently becomes a matter of importance to ascertain the presence or otherwise of true binocular vision as an index of the efficiency of treatment in squint, to decide the advisability of "correcting" both eyes when these are greatly dissimilar in refraction, and, indirectly, as a means of detecting attempts at malingering, or to determine the existence or absence of monocular blindness. One of the simplest experiments is to hold a pencil midway between the eyes of the patient and a printed page, perpendicularly to the lines of type. This presents no obstacle to the reading if binocular vision is present, but in the event of its absence portions of the page will be obscured by the pencil. The ordinary prism tests, Hering's drop experiment, and the various exercises with the stereoscope are familiar methods for obtaining the same object.

The effect of lenses in changing the form of retinal images has been studied especially by Donders, Stellwag and Knapp, while binocular metamorphopsia produced by correcting glasses was the subject of a capital paper by J. A. Lippincott, published some eighteen months ago. In this research Dr. Lippincott (*New York Medical Journal*, September 27, 1890), came to the following conclusions, which we quote from this most recent communication upon this subject, and the applications to which his experiments have led :

"1. A + spherical placed before one eye makes the corresponding side of a rectangle appear higher than the other side.

"2. A — spherical makes the corresponding side appear lower.

"3. A + cylinder, vertical, *increases*, whereas a + cylinder,

horizontal, lessens the apparent height of the corresponding side.

"4. A — cylinder, vertical, lessens, whereas a — cylinder, horizontal, increases the apparent height of the corresponding side.

"5. A + cylinder, axis pointing upward and outward, before either (and still more decidedly before each) eye makes the top of a rectangle appear narrower than the bottom, while if the axis points upward and inward the top appears wider.

"6. Minus cylinders, axis upward and outward, increase; whereas those with axis pointing upward and inward lessen the apparent relative width of the top.

"7. Binocular vision is necessary for the production of optical metamorphopsia. Hence the lens must not be so strong as to make the image sufficiently blurred to be incapable of fusion with that formed by the other eye, for in that case the blurred image is suppressed mentally and monocular vision thus practically established."

Inasmuch as the appearances just quoted can be demonstrated in all eyes without regard to the character of their refraction, provided true binocular vision exists, Dr. Lippincott has employed these phenomena to replace the ordinary stereoscopic tests. In fact, to quote his own language, "they are stereoscopic tests with the stereoscope left out." For the purpose of practical application Dr. Lippincott advises that a + 2 cylinder, vertical, be held before one eye, while a twelve-inch-square card is placed at the ordinary reading distance, and the patient asked to describe which of the two sides is higher. As a control test, the cylinder is now turned with its axis horizontal and the card again viewed. That side which in the first place appeared higher now seems to be lower than the other. So instead of a + cylinder a — cylinder, first with its axis vertical and then with its axis horizontal, may be employed; or the glass may be held with its axis oblique before the eyes. The ease and rapidity with which this examination can be made, and its undoubted accuracy in so far as a proof of true binocular vision is concerned, commend it as a very time-

saving method. Concerning its application to the detection of the presence or absence of monocular blindness, it may be said, as Dr. Lippincott has pointed out, that if the results are negative they demonstrate only the absence of stereoscopic vision, but do not prove the presence of monocular blindness. They none the less, however, could be employed as a control test in association with the other methods which usually depend upon the prevention of the sound eye from seeing, or in the case of malingering, upon the prevention of that eye which is claimed to be sound from seeing.

No very satisfactory explanation of these phenomena has ever been given, although in the opinion of the author of the test that one put forward by Dr. John Green most nearly solves the problem. The writer, discussing the apparent distortion of objects viewed through lenses, points out that as we learn to see things as they are through an education of the sense of vision, when the data upon which we have learned to rely are suddenly changed, illusions are apt to be evoked requiring a correction of the judgment in accordance with the new conditions.—*Univers. Med. M.*

CASE OF SYMPATHETIC INFLAMMATION AFTER PANOPHTHALMITIS OF THE INJURED EYE.

BY S. C. AYRES, M. D., CINCINNATI.

A paper read before the South-Western Ohio Medical Society, October, 1890.

The study of sympathetic ophthalmia, in all its phases, is now, and always will be, one of intense interest to the specialist.

This disease, so insidious in its approach, so persistent in its course, and so fatal in its results, is always to be dreaded. Statistics show that not only punctured and incised wounds and foreign bodies within the globe, but cataract extractions, perforations of the cornea and sclera from idiopathic inflammation not due to traumatism, are now well known to be both the direct and remote cause of sympathetic ophthalmia. It was formerly taught that suppuration of the globe, or panophthalmitis, was a bar to the development of sympathetic trouble in the fellow eye. Attempts were even made to produce suppuration in order to place the sound eye in as safe a condition as possible. But as observations have been more accurate, the fallacy of the above theory has been demonstrated. Statistics from reliable observers are not wanting to show, beyond a doubt, that panophthalmitis of one eye does not prevent the development of sympathetic inflammation in the other. The aggregate of such cases is not great as yet, but observations are slowly accumulating, and the fact as stated in relation to panophthalmitis, is now well established.

In the light of the present day, it is surprising to read in Berry's work, published recently, that "when an inflammation, even though produced by micro-organisms, is excessively se-

vere, and results in purulent destruction of the tissues, as in a case of panophthalmitis, the lymph channels become obliterated, and the danger of further transference of organisms averted. The immunity thus given by panophthalmitis, a clinical fact which has long been observed, is explained without too much stretching of this hypothesis."

Noyes, on the contrary, in his excellent book says that: "panophthalmitis does not preclude the possibility of sympathetic effects."

Dr. Wecker, in his *Ocular Therapeutics*, says: "The destruction of the intra-ocular nerves by suppuration would offer a perfect guarantee if only there could be any certainty that all the nerves, the termination of the optic included, had disappeared. Although the stumps of eyes which have suppurated may be considered as the least dangerous, they cannot be looked on as above suspicion, and therefore any treatment which should attempt by artificial suppuration to secure an eye from sympathetic inflammation, ought to be condemned as radically bad."

In the *Archives of Ophthalmology* for 1876, Dr. Alt has collected from various sources 110 cases of sympathetic inflammation. In his conclusions he says it is worth mentioning that in thirteen of the cases where eyes were enucleated for sympathetic irido choroiditis, the other had been lost by panophthalmitis purulenta.

In the *Royal London Ophthalmic Hospital Reports* for 1887, is an article on "Sympathetic Inflammation of the Eye-ball," by Gunn, in which he reports the results of the examinations of forty-seven cases which were enucleated in that institution. They are carefully classified as to age, cause and character of injury, interval of sympathetic manifestation, the final condition of injured and sympathizing eye, and the effects of treatment. In this valuable and exhaustive article, he states, among his conclusions, that in three cases panophthalmitis preceded the development of sympathetic manifestations. In the first case the injured eye was enucleated, and a few days later sympathetic inflammation developed in the fellow eye.

In the other two cases panophthalmitis followed cataract extraction, and in both sympathetic ophthalmitis developed within a few weeks.

In view of the importance of this subject, I have taken the liberty to present a case which has come under my observation, where sympathetic trouble followed panophthalmitis.

Mary Dixon, æt. 8, was injured the last week in December, 1888, in the following manner: She opened a window and a strong wind was blowing, and dust or some other substance struck her left eye, causing slight pain. As she closed the window, a portion of one of the panes broke, and it is not certain whether a fragment of the glass penetrated the eye or not. Two days later she had a chill which was followed by an eruption, and violent inflammation of the eye set in, and she had suppuration of the globe. What this eruption was is not certain, but she has some scars on her forehead which very much resemble varioloid. The eye was quite painful for several days, but slowly subsided, and the eye is now very much shrunken. About four months after this suppuration, the vision of the right eye began to fail. The evidences of this were a slight cloudiness in distant vision, and an inability to recognize things which she could see clearly before. This gradually increased, especially during the month of October, when her vision became very much impaired.

Upon examination the right eye was found in the following condition: The iris was adherent to the lens and presenting an irregular and knotty appearance from masses within the stroma of the iris; the pupil was filled with a dense secondary membrane, and the vision was reduced to counting fingers with difficulty at three feet. There was some tenderness in the ciliary region, and tension was diminished. The stump of the right eye was not sensitive, and there seemed to be no urgent reason for its removal.

The relief of the inflammation was the most important point to be gained, and from my successful use of poultices in such cases, I let her return home with instructions to use poultices regularly every day, and report progress. It was my intention

to make an iridectomy, but I wanted to wait until the eye would be in a suitable condition. An iridectomy made during the active progress of a plastic iridocyclitis is usually negative in results, owing to the fact that the coloboma is soon closed with lymph. She went home with instructions in relation to treatment.

In March I enucleated the stump. It was very much shrunken and collapsed. The right remains as it was, so far as vision is concerned. There is no tenderness in the ciliary region. In all probability the lens will become opaque in time and can be extracted.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, October 16, 1890, Henry Power, F.R.C.S.,
President, in the Chair.

INTRODUCTORY ADDRESS.

On taking his seat as President of the Society, Mr. Power paid a graceful tribute to his predecessor in the chair, Dr. Hughlings Jackson. He referred to the address delivered by Mr. Hulke on a former occasion, which included a sketch of the wonderful developments and improvements in ophthalmology within that eminent surgeon's immediate knowledge and observation. Looking back through the past year, there was no startling discovery to be recorded. There were, however, ample fields for work. Much still remained unknown in the pathology and treatment of such diseases as sympathetic ophthalmia, white atrophy of the disc, and conical cornea. Glaucoma, acute and chronic, was still not fully understood, and the best method of operating in cataract, and of treating secondary cataracts and detachment of the retina were not yet agreed upon. Mr. Power made a brief allusion to the papers and works on ophthalmology published during the past year both in this country and abroad. He congratulated the Society upon the award of the Middlemore prize to two of its members. After referring to the large and increasing membership of the Society, he urged upon those who were intending to take up this branch of medical science the importance of a thorough preliminary training, both general and medical.

GRAEFE'S LID SIGN.

Dr. Sharkey read a paper based upon the results of an investigation he had made in his out-patient room at St. Thomas' Hospital upon 613 cases. He said: The questions I set myself to answer were: 1, What views do others hold as to the value of the lid sign? as a matter of fact, is it always present in Graves' disease? 2, Is it always absent in health and in other diseases? In reply to the first question, reference to the literature of the subject showed that Graefe himself in 1864, describing the sign as the absence of correspondence between the movement of the lid and the elevation and lowering of the visual plane, considered it pathognomonic, and so particularly important in the earliest stages of the affection. Subsequent writers have recognized the importance of the symptom, but do not consider it pathognomonic. My own experience is that it is often absent in Graves' disease. But is it always absent in health and in other diseases? No one seems ever to have deliberately set about answering this question. And yet on an answer to it mainly depends the importance of the symptom. Among the 613 cases of diseases of all kinds examined, 12, or a little less than 2 per cent., presented it well marked. Many others had it so long as they stared at the object held before them; and it was difficult to prevent them from doing so. A large proportion of healthy people can voluntarily produce the lid sign in themselves by staring. Inasmuch, then, as Graefe's lid sign is far from always present in undoubted cases of Graves' disease, and is often very well marked in others who certainly have not Graves' disease, it cannot be considered very valuable as a diagnostic sign. What is the cause of Graefe's lid sign? It is clear that there is overaction of the muscles which raise the lid, namely, the levator palpebræ, supplied by the third nerve, and the unstriped muscle of the lid supplied by the sympathetic. Remak showed that irritation of the sympathetic produced elevation and retraction of the upper lid; and the fact that one can voluntarily produce this shows that it can likewise be effected

through the third cranial nerve. Constant active spasm rarely results from irritation, though intermittent spasm may. Prolonged spasm most frequently owes its origin to paralysis or weakening of opposing muscles. Is there evidence in Graves' disease of a weakening of the muscles which close the eyes? Stellwag has shown that a very constant symptom of the disease is diminished frequency and incompleteness of the involuntary closure of the lids, which goes on so continuously in health. The orbicularis palpebrarum, which effects this movement, and is the opponent of the muscles which raise the lid, being weakened in Graves' disease, and losing tone by inaction, the healthy equilibrium of the muscles of the eye is lost, the opening overpowering the closing muscles, and producing retraction of the upper lid and Graefe's sign. Thus the infrequency of winking, which Stellwag refers to disease of the centre, is the primary result of disease, and retraction of the lids and Graefe's sign follows as a consequence. This appears to me to be the most satisfactory explanation of the lid sign.

RECOVERY FROM GRAVES' DISEASE.

Mr. Lawford read notes of the case of a female, *æt.* 43 years, who ten years previously had been seriously ill with all the usual symptoms of exophthalmic goitre, and had been under treatment at a London hospital for some months. She slowly recovered, and had been for the last nine years in good health, but liable to bronchitis. She attended as an out-patient at St. Thomas' Hospital for conjunctivitis, and it was then noticed that there was marked proptosis, but no other signs of disease; the eyelids were normal in position and movement; the thyroid could not be felt, and there was no cardiac trouble. The patient herself stated that the protrusion of the eyes had not diminished since they became prominent during her acute illness; but with this exception she knew of no symptom left by the attack.

Dr. Hughlings Jackson referred to a series of cases collected

by Mr. Roxburgh, but not published, in which exophthalmos occurred without the other symptoms of Graves' disease. It was important to know that the disorder might pass off, as in the case reported.

Mr. Poulett Wells referred to a case of Graves' disease in a woman whom he had seen at Moorfields. She had all the usual symptoms and signs well marked, and rapidly improved after treatment by iron and bromide of potash.

Dr. James Anderson had met with cases that recovered, but in them there remained considerable pigmentation of the skin. He thought it would be found that Graves' disease, like glycosuria, included a great number of different conditions. At the present time several groups of symptoms were recognized, cardiac, goitrous, ocular, and changes of disposition, which were not often all present in the same subject. Graefe's symptom was often encountered, but was not sufficiently constant to be pathognomonic.

Dr. Sidney Coupland thought that if the retraction of the upper lid were due to spasm of the levator palpebræ, induced by the lack of opposing force in the orbicularis palpebrarum, it was unlikely that the symptom would occur during the act of staring.

Mr. McHardy spoke of the extreme rarity of necropsies upon cases of Graves' disease. He also called attention to the occurrence of alopecia areata in these patients. He had met with it in three, in two of which it was associated with considerable pigmentation of the skin.

Dr. Sharkey briefly replied to the remarks made upon his paper, and further explained his reasons for the views he had enunciated. In the act of staring there was preponderance of action of the levator palpebræ, although the orbicularis palpebrarum might be normal. In Graves' disease the preponderance of the levator muscle was due, not necessarily to its over action, but to diminished power in the opposing orbicularis muscle.

PARALYSIS OF BOTH EXTERNAL RECTI, WITH CONTRACTION OF
THE INTERNAL RECTI.

This communication by Mr. Donaldson (Londonderry) was read by the Secretary. J. K., æt. 70 years. When about 50 years old the eyes began to turn in, and the deviation slowly increased for about ten years. The eyelids generally remain almost closed, as shown in a photograph, but can be partially raised by the action of the occipito-frontalis. Both eyeballs are rotated inwards and a little downwards, so that the outer margin of each cornea is barely visible at the inner canthus. The deviation is rather greater in the right eye. The movement of the eyes is extremely limited. Perception of light is retained, and the patient complains that a bright light is painful to her. Her general health is good; there is no other paralysis, and no sign or history of rheumatism, gout, syphilis, alcoholism, or injury is obtainable.—*Brit. Med. Journ.*

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